

ABSTRACT

A liquid metal evaporation source for use in Molecular Beam Epitaxy and related metal vacuum deposition techniques. An evaporator is maintained at a high temperature to evaporate a liquid metal, a reservoir for holding the liquid metal source is maintained at a temperature above the melting point of the metal but below the temperature in the evaporator, and a hollow transport tube connecting the evaporator and reservoir is maintained at a temperature between these temperatures. The reservoir is in the shape of a hollow cylinder with a close-fitting cylindrical piston which is used to force the liquid metal through the hollow transport tube into the evaporator. The liquid metal will not flow past the piston seal if a suitably small gap is formed between the piston and the reservoir walls wherein the surface tension of the liquid metal will exceed its hydrostatic pressure against the piston thus forming a leak-tight seal.